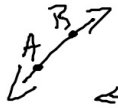
I will be able to learn the terminology and notation of points, lines, line segments, rays, planes, angles, colinear and coplanar points and learn the idea of congruence of line segments.

1.1 Building Blocks of Geometry 8/25/16

Point • A a specific location, it has no size or dimension

Line  one dimension: length, infinitely long

$\overleftrightarrow{AB}$ $\overleftrightarrow{BA}$

Line segment  a piece of a line with a definite length

$\overline{CD}$ $\overline{DC}$

I will be able to learn the terminology and notation of points, lines, line segments, rays, planes, angles, colinear and coplanar points and learn the idea of congruence of line segments.

1.1 Building Blocks of Geometry

Congruent segments multiple line segments which are exactly the same length

Plane  a set of points in two dimensions, infinitely large

Coplanar  points located on the same plane

I will be able to learn the terminology and notation of points, lines, line segments, rays, planes, angles, colinear and coplanar points and learn the idea of congruence of line segments.

1.1 Building Blocks of Geometry

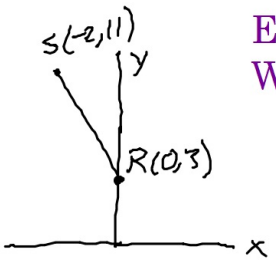
Colinear  points located on the same line

Midpoint  a point that bisects a segment

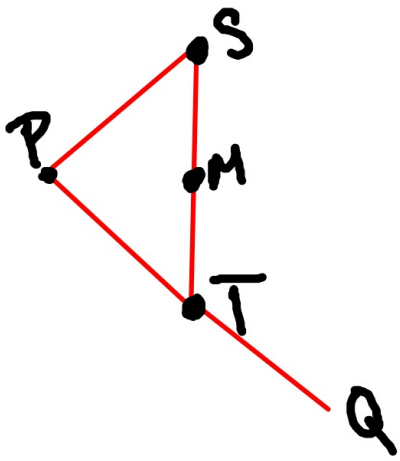
Bisect to separate into two equal parts

I will be able to learn the terminology and notation of points, lines, line segments, rays, planes, angles, colinear and coplanar points and learn the idea of congruence of line segments.

1.1 Building Blocks of Geometry



Exercises pp. 33-34 DG #1-20 evens
Work with a partner.



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1.2 Billiards Math

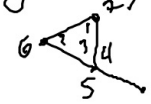
8/26/16

I will be able to show the measures of angles and segments on figures, become familiar with the symbols for marking figures, learn the idea of angle congruence, and learn that in physical situations the incoming angle (angle of incidence) is equal to the outgoing angle (angle of reflection).

1.2 Billiards Math

8/26/16

Angle ∠ Where two line segments, lines, or rays meet



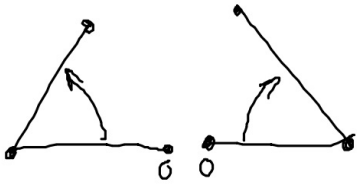
Vertex the point where the segments connect

Measure of an angle

$m\angle A$ done in degrees

$m\angle CAB$

$m\angle BAC$



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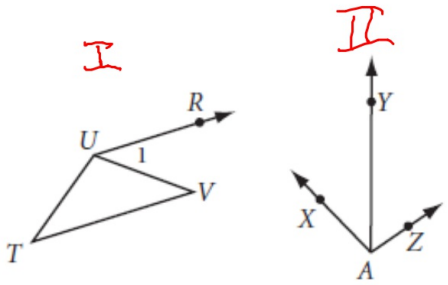
1.2 Billiards Math

Name all of the angles in both figures.



I

∠RUT ∠1

∠VUT

∠RUV

∠T

∠UTV

∠VTU

∠V

∠UVT

∠TVU

II

∠ZAX

∠XAZ

∠YAX

∠YAZ

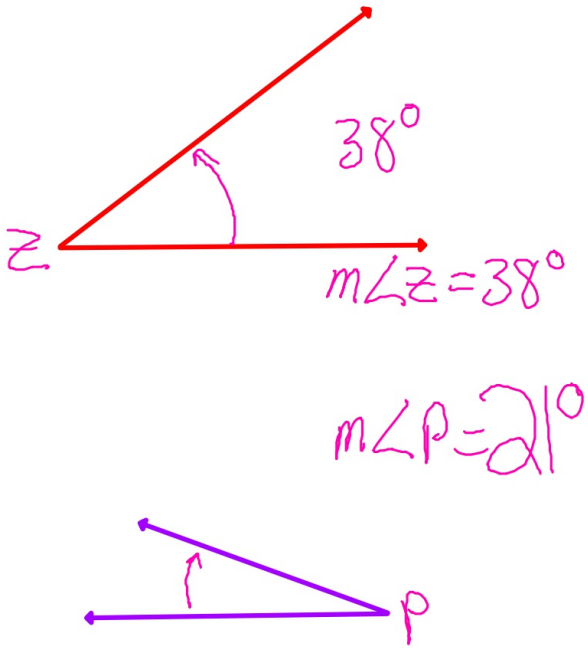
∠XAY

∠ZAY

I will be able to show the measures of angles and segments on figures, become familiar with the symbols for marking figures, learn the idea of angle congruence, and learn that in physical situations the incoming angle (angle of incidence) is equal to the outgoing angle (angle of reflection).

1.2 Billiards Math

Label and measure both angles then accurately copy these angles into your notes.



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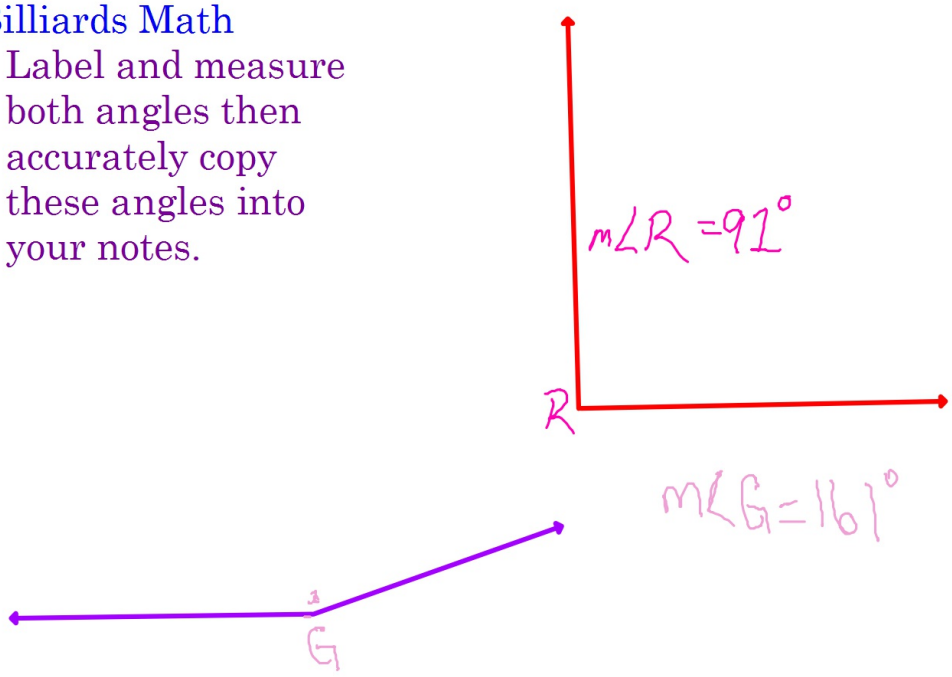

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1.2 Billiards Math

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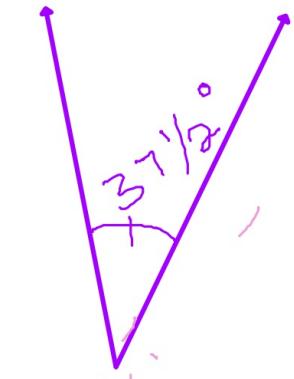

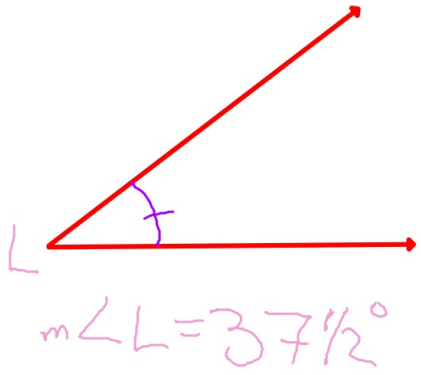

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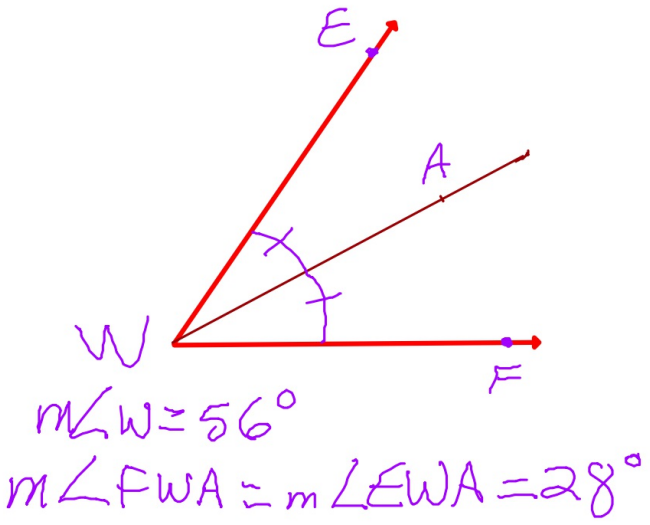
1.2 Billiards Math

Label, measure, and bisect the angle then accurately copy it into your notes.



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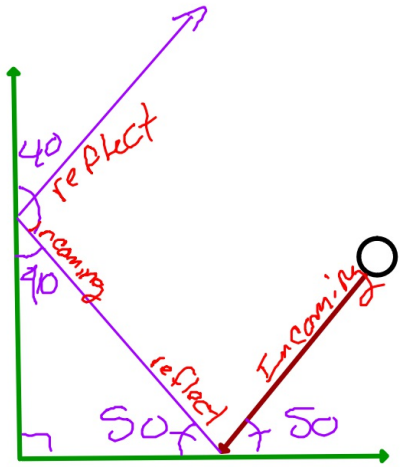
1.2 Billiards Math



I will be able to show the measures of angles and segments on figures, become familiar with the symbols for marking figures, learn the idea of angle congruence, and learn that in physical situations the incoming angle (angle of incidence) is equal to the outgoing angle (angle of reflection).

1.2 Billiards Math

Exercises pp. 42-44 DG #7-25 odds
Work with a partner.

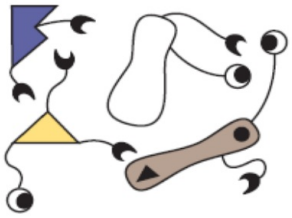
I will be able to show the measures of angles and segments on figures, become familiar with the symbols for marking figures, learn the idea of angle congruence, and learn that in physical situations the incoming angle (angle of incidence) is equal to the outgoing angle (angle of reflection).

IWBAT practice writing definitions and define special angle relationships.

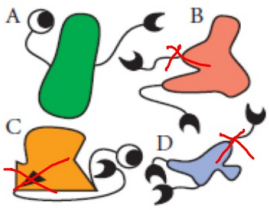
1.3 Widgets 8/30/16

Which creatures in the last group are Widgets?

Widgets



Not Widgets



Who are Widgets?

Qualifications

only 2 attachments
two att. are diff.
one att. ½ moon
one att. like an eye
non-white

Disqualifications

have 3+ attachments
att. can be same
have inner shapes

Definition A widget has two attachments (½ moon + eye), is a color other than white, and has no inner shapes.

1.3 Widgets

A square is a _____ that _____. Counterexample

4 sides (equal)

4 sided shape

is = on all sides

4 sided shape that has all 4 corners @ 90°

4 sided shape that has 4 equal sides and 4 90° ∠

IWBAT practice writing definitions and define special angle relationships.

1.3 Widgets

Define the following terms and give examples and counterexamples:

Parallel lines ||

Two lines that never intersect but travel in the same direction

Perpendicular lines ⊥

Two lines that intersect at a 90° ∠

Right angles ⌙

When two objects meet at a 90° ∠

IWBAT practice writing definitions and define special angle relationships.

1.3 Widgets

Define the following terms and give examples and counterexamples:

Acute angles

Any angle $< 90°$ and $> 0°$

Obtuse angles

Any angle $> 90°$ and $< 180°$

Pair of vertical angles

where two lines cross, two angles share a vertex but not their sides and their measures are equal

IWBAT practice writing definitions and define special angle relationships.

1.3 Widgets

Define the following terms and give examples and counterexamples:

Linear pair of angles

two angles that share a side and a vertex and they form a line with their sides which are not shared

Supplementary angles

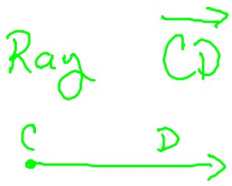
two angles that add together to $180°$

Complementary angles

two angles that add together to $90°$

IWBAT practice writing definitions and define special angle relationships.

1.3 Widgets



Exercises DG p. 51 #1, 3, 5, 7, 8, 10

IWBAT practice writing definitions and define special angle relationships.

1.4 Polygons 8/31/16

IWBAT classify polygons and related terms.

1.4 Polygons

9/01/16

What is a polygon?

Polygons

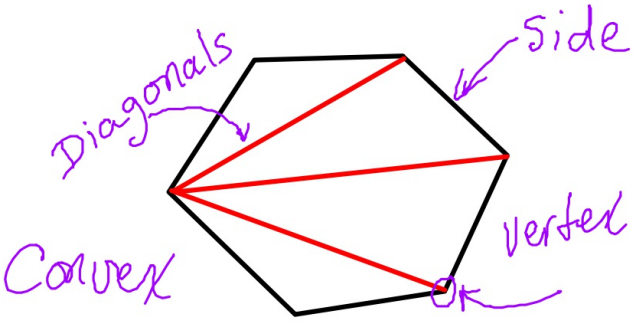
Not polygons

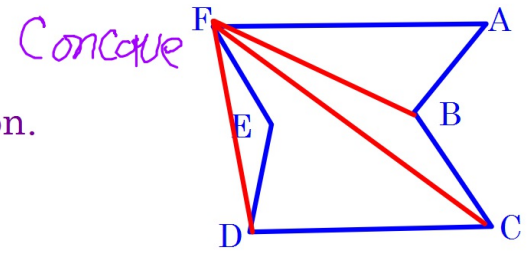
Sides may not intersect
must be closed
straight sides
at least 3 sides

IWBAT classify polygons and related terms.

1.4 Polygons

Parts of a polygon





Name the blue polygon.

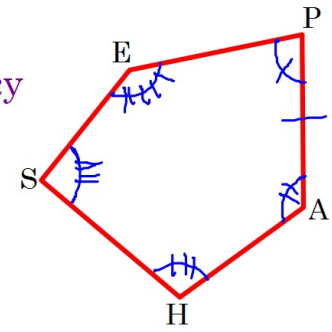
FABCDE
FEDCBA

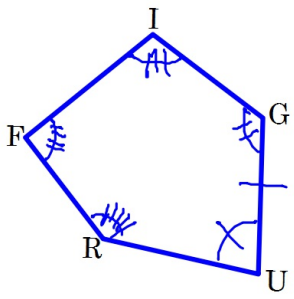
△ ABC

IWBAT classify polygons and related terms.

1.4 Polygons

Congruency





$\angle P \cong \angle U$ arc

$\overline{GU} \cong \overline{PA}$

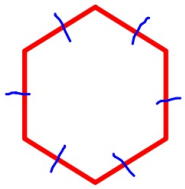
polygons SHAPE and FIGUR are congruent

IWBAT classify polygons and related terms.

1.4 Polygons

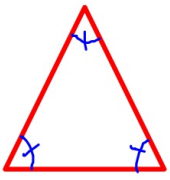
Equilateral polygon

all sides are the same size



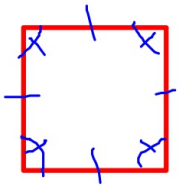
Equiangular Polygon

all angles are the same size



Regular polygon

an equilateral and equiangular polygon



IWBAT classify polygons and related terms.

1.4 Polygons

Exercises DG p. 56 #1-8, 15, 17, 19, 22

IWBAT classify polygons and related terms.

1.5 Triangles & Special Quadrilaterals 9/02/16

IWBAT define and classify triangles and quadrilaterals, along with their related parts.

1.5 Triangles & Special Quadrilaterals 9/02/16

What can I assume to be true?

- lines are straight
- intersecting lines intersect at only one point
- points on a line are colinear
- all points in a figure are coplanar unless specifically shown to be non-coplanar

What can I *not* assume to be true?

- lines are not parallel unless specifically marked as parallel lines $\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$
- lines are not perpendicular unless specifically marked as perpendicular $\overleftrightarrow{AB} \perp \overleftrightarrow{CD}$
- pairs of angles, segments, or polygons are not congruent unless specifically marked as congruent $\overline{AB} \cong \overline{CD}$

IWBAT define and classify triangles and quadrilaterals, along with their related parts.

1.5 Triangles & Special Quadrilaterals

Right triangle 

A triangle with perpendicular legs
one right angle

Acute triangle 

A triangle with all angles $< 90°$

Obtuse triangle 

A triangle with one $\angle > 90°$

IWBAT define and classify triangles and quadrilaterals, along with their related parts.

1.5 Triangles & Special Quadrilaterals

Scalene triangle 

A triangle whose sides are all different lengths

Isosceles triangle 

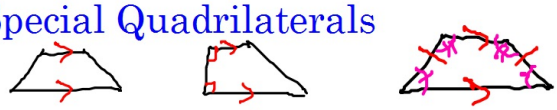
A triangle with 2 identical sides and base angles

Equilateral triangle 

A triangle with 3 identical sides and angles

IWBAT define and classify triangles and quadrilaterals, along with their related parts.

1.5 Triangles & Special Quadrilaterals

Trapezoid 

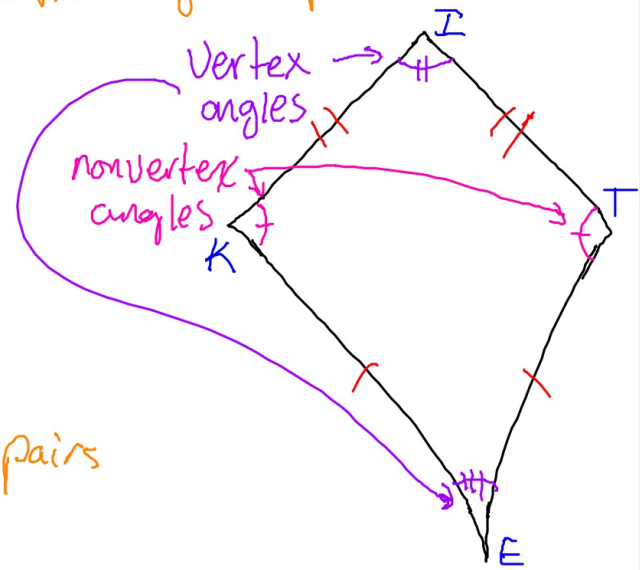
a quadrilateral with only one pair of parallel sides

Kite

a quadrilateral with two pairs of congruent consecutive sides

Parallelogram 

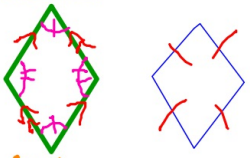
a quadrilateral with two pairs of parallel sides



IWBAT define and classify triangles and quadrilaterals, along with their related parts.

1.5 Triangles & Special Quadrilaterals

Rhombus
a parallelogram with 4 equal sides
or an equilateral parallelogram



Rectangle
a parallelogram with four right angles

Square
an equilateral rectangle
or a rhombus w/ 4 right angles

IWBAT define and classify triangles and quadrilaterals, along with their related parts.

1.5 Triangles & Special Quadrilaterals

Exercises DG pp. 64-65 #1, 10-13, 22-24

IWBAT define and classify triangles and quadrilaterals, along with their related parts.

9/08/16

Task: Polygon Capture

Quiz 1

2.1 Inductive Reasoning

9/09/16

IWBAT become familiar with inductive reasoning and use inductive reasoning to find the next item in a pattern.

2.1 Inductive Reasoning 9/09/16

Inductive reasoning is the process of observing data, recognizing patterns, and making generalizations about those patterns.

A scientist dips a platinum wire into a solution containing salt (sodium chloride), passes the wire over a flame, and observes that it produces an orange-yellow flame. She does this with many other solutions that contain salt, finding that they all produce an orange-yellow flame.
Make a conjecture based on her findings.

If a solution contains NaCl, then it will produce an orange-yellow flame

IWBAT become familiar with inductive reasoning and use inductive reasoning to find the next item in a pattern.

2.1 Inductive Reasoning

Consider the sequence 2, 4, 7, 11, . . .
Make a conjecture about the rule for generating the sequence. Then find the next three terms.

To find the next term in the sequence, you must ___.

2 4 7 11 16 22 29

+2 +3 +4 +5 +6 +7

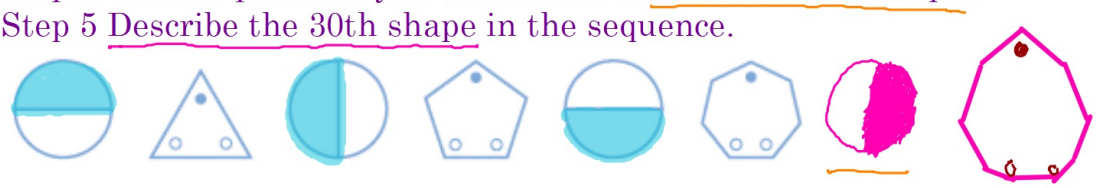
add to our current term the place of the next term in the sequence

IWBAT become familiar with inductive reasoning and use inductive reasoning to find the next item in a pattern.

2.1 Inductive Reasoning

Look at the sequence of shapes below. Pay close attention to the patterns that occur in every other shape.

Step 1 What patterns do you notice in the 1st, 3rd, and 5th shapes?
Step 2 What patterns do you notice in the 2nd, 4th, and 6th shapes?
Step 3 Draw the next two shapes in the sequence.
Step 4 Use the patterns you discovered to draw the 25th shape.
Step 5 Describe the 30th shape in the sequence.



31 Side Polygon with one Shaded Circle on top & 2 at the bottom None Shaded.

IWBAT become familiar with inductive reasoning and use inductive reasoning to find the next item in a pattern.

2.1 Inductive Reasoning

Exercises DG p. 97 #3-13 odd

IWBAT become familiar with inductive reasoning and use inductive reasoning to find the next item in a pattern.

IWBAT become familiar with deductive reasoning and learn the relationship between inductive reasoning and deductive reasoning.

That's the way things come clear. All of a sudden. And then you realize how obvious they've been all along. MADELEINE L'ENGLE

2.2 Deductive Reasoning 9/12/16

Deductive reasoning is the process of showing that certain statements follow logically from agreed-upon assumptions and proven facts.

Solve the equation for x. Give a reason for each step in the process.

$3(2x + 1) + 2(2x + 1) + 7 = 42 - 5x$ equation given

$6x+3+4x+2+7=42-5x$ distributive property

$10x+12=42-5x$ Combine like terms

$-12 \quad -12$ Subtraction rule of equality

$10x=30-5x$

$+5x \quad +5x$ addition " "

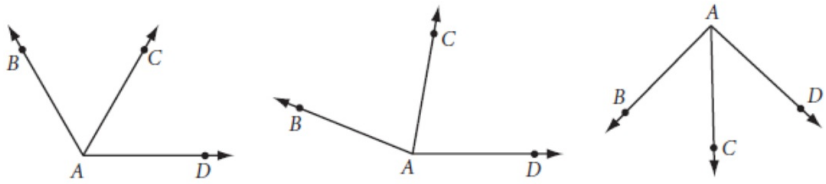
$\frac{15x}{15}=\frac{30}{15}$ division " "

$x=2$

IWBAT become familiar with deductive reasoning and learn the relationship between inductive reasoning and deductive reasoning.

2.2 Deductive Reasoning

In each diagram, $\overrightarrow{AC}$ bisects obtuse angle BAD. Classify $\angle BAD$, $\angle DAC$, and $\angle CAB$ as *acute*, *right*, or *obtuse*. Then complete the conjecture.



$m\angle BAD = 120°$ $m\angle BAD = 158°$ $m\angle BAD = 92°$

Conjecture: If an obtuse angle is bisected, then the two newly formed congruent angles are acute. Justify your answers with a deductive argument. Bisecting

Dividing the largest obtuse angle (179.99°) in half will end up with two angles measuring less than 90°, so every angle would be acute.

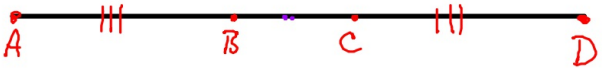
IWBAT become familiar with deductive reasoning and learn the relationship between inductive reasoning and deductive reasoning.

2.2 Deductive Reasoning

In each segment, $\overline{AB} \cong \overline{CD}$.

If $\overline{AD}$ has points A, B, C, and D in that order with $\overline{AB} \cong \overline{CD}$, then _____.

$\overline{BC}$ $\overline{AD}$
$\overline{BD} \cong \overline{AC}$



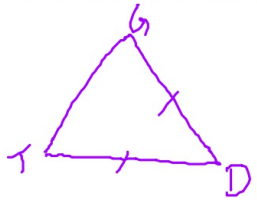
$\overline{AB} \cong \overline{CD}$ given
$\overline{BC} \cong \overline{BC}$ same segment
$\overline{AC} \cong \overline{BD}$

Overlapping segments $\overline{AC}$ + $\overline{BD}$ are congruent

IWBAT become familiar with deductive reasoning and learn the relationship between inductive reasoning and deductive reasoning.

2.2 Deductive Reasoning

(4)



$P = 756\text{cm}$

$\overline{GT} = 240 -$

$516 = \overline{TD} + \overline{DG}$

$516 = \overline{TD} + \overline{TD}$

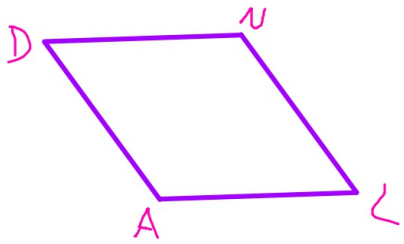
$\frac{516}{2} = \frac{2\overline{TD}}{2}$

$\overline{TD} = 258\text{cm}$

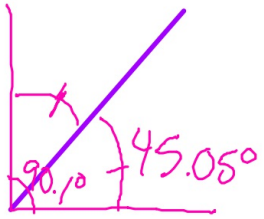
$\overline{DG} = 258\text{cm}$

Exercises DG p.103 #1-4, 6-8

(6)



(8)



IWBAT become familiar with deductive reasoning and learn the relationship between inductive reasoning and deductive reasoning.

2.5 Angle Relationships 9/14/16

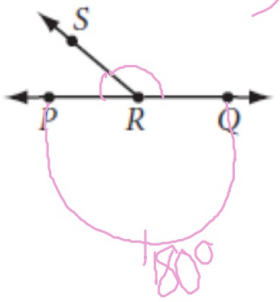
IWBAT discover relationships between special pairs of angles.

2.5 Angle Relationships 9/14/16

Linear Pair Conjecture

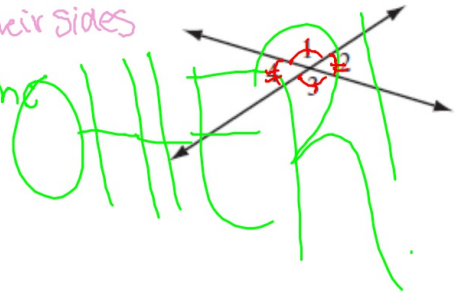
If two angles form a linear pair, then Supplementary.

$m\angle PRS + m\angle SRQ = 180°$



Vertical Angles Conjecture

If two angles are vertical angles, then The two angles share a vertex but not their sides and Congruent to each OTHER!



IWBAT discover relationships between special pairs of angles.

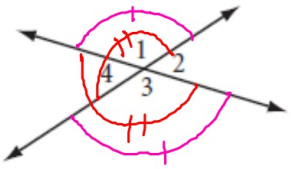
2.5 Angle Relationships

The Linear Pair Conjecture states that every linear pair adds up to 180°. Using this conjecture and the diagram, write a logical argument explaining why angle 1 must be congruent to angle 3.

$m\angle 1 + m\angle 4 \cong m\angle 3 + m\angle 4$

$-m\angle 4 \qquad -m\angle 4$

$m\angle 1 \cong m\angle 3$



$a + b = c + b$

$-b \qquad -b$

$a = c$

IWBAT discover relationships between special pairs of angles.

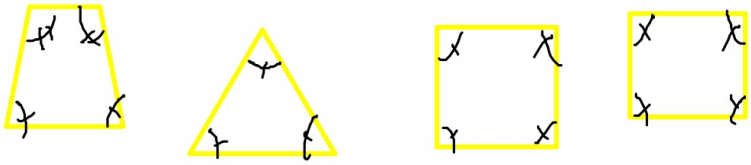
2.5 Angle Relationships

The converse of an "if-then" statement reverses the "if" and "then" sections. For example,

Vertical Angles Conjecture
If two angles are vertical angles, then they are congruent.

The converse of the Vertical Angles conjecture:
If two angles are congruent, then they are vertical angles.

Is the converse also true?



IWBAT discover relationships between special pairs of angles.

2.5 Angle Relationships

Exercises DG pp. 122-123 #1-10

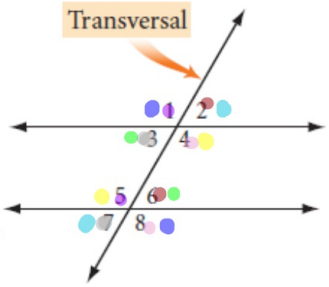
IWBAT discover relationships between special pairs of angles.

2.6 Special Angles on Parallel Lines 9/16/16

IWBAT explore relationships of the angles formed by a transversal cutting parallel lines.

2.6 Special Angles on Parallel Lines 9/16/16

A line intersecting two or more other lines in the plane is called a transversal.



corresponding angles are angles which are located on the same side of the transversal and on the same side of the || lines
e.g. angles 1 & 5, 4 & 8

alternate interior angles
e.g. angles 3 & 6
which are located on opposite sides of the transversal and between the || lines

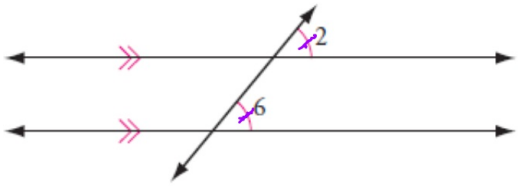
alternate exterior angles
e.g. 2 & 7
which are located on opposite sides of the transversal and outside the || lines

IWBAT explore relationships of the angles formed by a transversal cutting parallel lines.

2.6 Special Angles on Parallel Lines

Corresponding Angles Conjecture, or CA Conjecture

If two parallel lines are cut by a transversal, then corresponding angles are congruent.



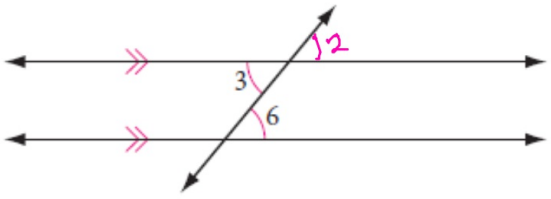
IWBAT explore relationships of the angles formed by a transversal cutting parallel lines.

2.6 Special Angles on Parallel Lines

Alternate Interior Angles Conjecture, or AIA Conjecture

If two parallel lines are cut by a transversal, then alternate interior angles are congruent.

If $\angle 6 \cong \angle 2$ CA
and $\angle 2 \cong \angle 3$ VA
then $\angle 6 \cong \angle 3$
(Transitive property)

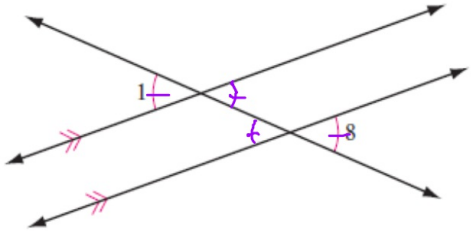


IWBAT explore relationships of the angles formed by a transversal cutting parallel lines.

2.6 Special Angles on Parallel Lines

Alternate Exterior Angles Conjecture, or AEA Conjecture

If two parallel lines are cut by a transversal, then alternate exterior angles are congruent.



IWBAT explore relationships of the angles formed by a transversal cutting parallel lines.

2.6 Special Angles on Parallel Lines

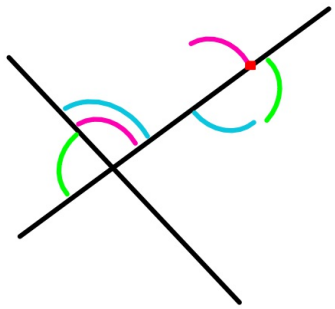
Let's put it all together.

Parallel Lines Conjecture

If two parallel lines are cut by a transversal, then corresponding angles are congruent, alternate interior angles are congruent, and alternate exterior angles are congruent.

Is the converse true?

Yes, the converse is also true.



IWBAT explore relationships of the angles formed by a transversal cutting parallel lines.

2.6 Special Angles on Parallel Lines

Converse of the Parallel Lines Conjecture

If two lines are cut by a transversal to form pairs of congruent corresponding angles, congruent alternate interior angles, or congruent alternate exterior angles, then the lines are parallel.

IWBAT explore relationships of the angles formed by a transversal cutting parallel lines.

2.6 Special Angles on Parallel Lines

Exercises DG pp. 129-130 #1-7

IWBAT explore relationships of the angles formed by a transversal cutting parallel lines.